

CAMPS COMPETITIONS and Cool Web Sites

Check out these sites for more information about summer engineering camps, engineering competitions for high school students, and web-based activities that will bring out the engineer in you!



American Society for Engineering Education
www.asee.org/precollge

American Society of Mechanical Engineers
www.asme.org/educate/k12

Discover Engineering On-line
www.discoverengineering.org

Get Tech
www.gettech.org

NASA for Kids
www.nasa.gov/kids.html

National Academy of Engineering Celebration of Women
www.nae.edu/cwe

National Engineers Week
www.eweek.org

Society of Women Engineers
www.swe.org

Try Science
www.tryscience.org

Women in Engineering
www.wieo.org



CONNECTIONS

9TH
AND 10TH
GRADES

CONNECTING STUDENTS TO THE WORLD OF ENGINEERING

Making a Difference

Engineering is a field that empowers people to solve all types of problems from designing new kinds of sports equipment to give players an extra edge while keeping them safe from injury, to developing sophisticated security equipment to keep our nation safe. Engineers develop new technologies for electronic voting, creating new drugs and medicines, creating new methods of communication and creating more “family time” by designing “smart” appliances that save on housework. The challenges are endless and engineers come up with solutions that are safe, effective, energy efficient, economical, and easy to use. And what about those challenges that lie ahead for you? One of the challenges you’ll face is making the most of your high school experience, preparing yourself now so you’ll have lots of choices later, in college and in your career.

Connections will help you learn more about exciting and rewarding career options in engineering. It will help explain what engineers really do, how they make a difference in the world, and what you can do to prepare yourself now if this is a field you’d like to explore in a few years. So, read on, and think about how you might be the person to solve one of the key challenges facing our world today!

Did You Know?

...that

by 2005, most jobs will require some science and math, and jobs in high paying technical fields, like engineering, medicine, and computer science, will require advanced math and science courses?

...that

algebra is considered a “gateway” subject that predicts whether students have the foundations to go on to more advanced courses?

...that

engineering graduates have the highest average starting salaries after four years of college of any discipline?

...that

there are 1.2 million engineers working in the U.S. today, making it the nation’s second largest profession?

MAKING A DIFFERENCE

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guests and employees. April has a bachelor of science degree in mechanical engineering and a master’s degree in fire protection engineering (as well as graduate degrees in French lit- and language!) One of her first assignments as a Fire Protection Engineer was as part of a team working with the U.S.

State Department to build 26 new embassies and consulates around the world!

“For young women considering engineering: Go For It! Don’t be afraid of science. You don’t have to get all A’s in your math and science courses to be a good engineer. There are few more rewarding careers out there.”



ACKNOWLEDGEMENTS

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IBM Women in Technology
Educational Development Center:
Center for Children and Technology,
Get Tech!, Discover Engineering!
TryScience.org, American Society
for Engineering Education, American Society
of Mechanical Engineers
National Academy of Engineering
National Engineers Week
Society of Women Engineers

WEPAN Administration Center
Lore-El Center
Stevens Institute of Technology
Castle Point on Hudson
Hoboken, NJ 07030 www.wepan.org



April Berkol

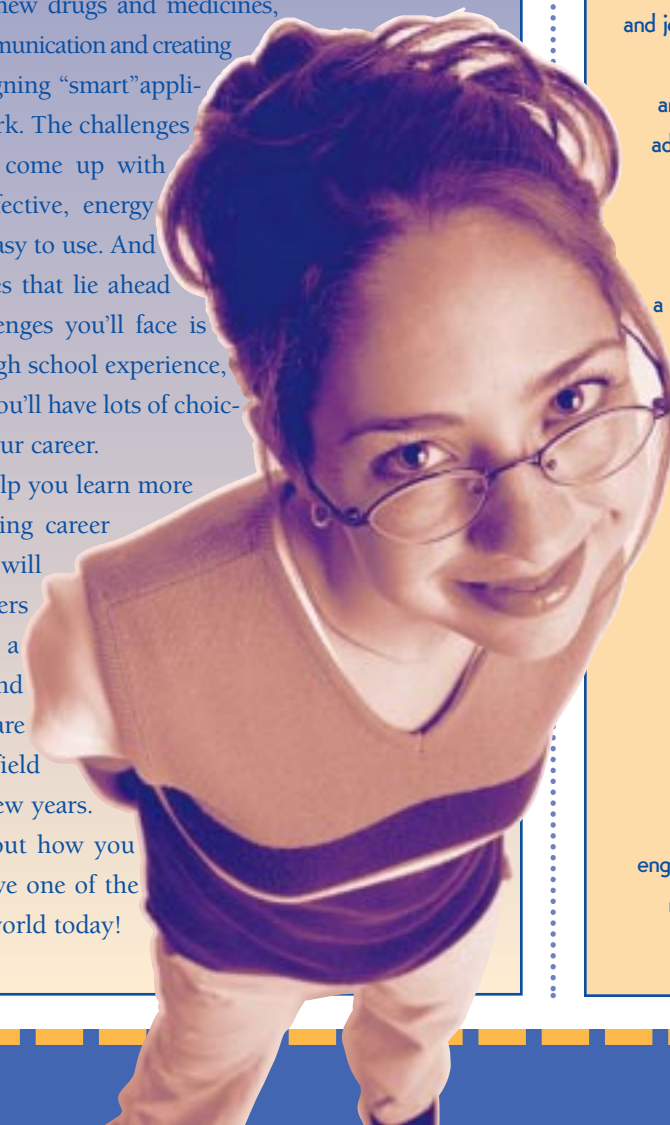
Ann Syrdal

I find in technical work and problem-solving, it’s very rewarding to have contributed to a technology that

is out there in the real world helping people.”

APRIL BERKOL

April Berkol oversees the environment, safety, health, fire and life safety programs at Starwood Hotels and Resorts, Worldwide, a company with over 700 hotels in more than 67 countries. The major responsibilities of her job involve fire safety design projects for new construction and renovation projects, which ensure the safety of all the hotels’



MAKING A Difference

PIONEERS AND PROBLEM-SOLVERS

PATT ROMERO CRONIN

Patt Romero Cronin was appointed Vice President of Olympic Technology Integration for IBM in 1999. In this position, Patt was responsible for supervising the development of 13 million lines of computer code to insure that the 2000 Sydney Olympic Games went smoothly. Spain was the location of this project and technicians from many countries were involved. Speaking Spanish was one of many necessary skills that Patt brought to this job. The Olympic management system had to keep track of many critical areas including: immigration and application forms for every athlete from every country; game schedules, scoring and statistics for 37 sports; and communications with the world news press agencies and sports commentators. Patt now leads a global team of 12,000 consultants who help clients plan, design and implement e-business solutions.

Patt credits her father, a civil engineer, for steering her in the direction of science and technology and instilling in her, a passion for life-long learning. Patt is doing the same for her three daughters.

“Working day in and day out with people from different cultures in all parts of the world is incredibly exciting. A global company like IBM gives me this opportunity.”

KELLY RANKIN

In 1998, Kelly Rankin, a coastal engineer and assistant professor at Stevens Institute of Technology in New Jersey, was a member of a team of three researcher/engineers who developed and installed three coastal “nodes” used by scientists and emergency managers dur-

ing major storms. Nodes are sophisticated systems that provide information on coastal conditions such as wave height, water level, and wind speed. This information, which is posted in real time on the Internet (www.dl.stevens-tech.edu/cgi-bin/cmnm.pl), helps local authorities, for example, determine if citizens should be evacuated during a coastal storm. During the installation, Kelly and her colleagues programmed all of the instruments, designed the mooring for the wave/ tide gauge and did the diving to install the gauge and sea-cable.

“Engineering, to me, is the application of science in the context of society. It is all about solving important problems and improving quality of life. It is a dynamic and exciting process of which I am proud to be a part!”

RUTHIE LYLE

Ruthie Lyle is a systems planning engineer at KeySpan Energy, performing analyses, designing improvements, and developing comparisons of alternatives for energy use. She is the first African American woman to earn a doctoral degree in electrical engineering from Polytechnic University in Brooklyn, NY in the school's 145-year history! Ruthie is also one of approximately 25 African American women to earn this degree in the last decade in the U.S.!

“I worked very hard to earn my Ph.D., and I want to encourage you to consider career opportunities in science and engineering.”

ERIN GORMLEY

Erin Gormley is an aerospace engineer at the National Transportation Board (NTSB) in the Vehicle Recorders Division. Her job consists of reading out flight data

recorders (FDRs), one of the two ‘black boxes’ on an aircraft. After an aircraft accident, the recorder is brought to the NTSB laboratory in Washington, DC. She converts the data into vital performance information (i.e. altitude, air-speed) and looks for abnormalities that may have contributed to the crash. She works closely with aircraft manufacturers, airlines, and pilots to interpret the data from the ‘black boxes’ and participates in necessary testing. Since no two accidents are alike, she is constantly learning and being challenged!

Kelly Rankin



Erin Gormley

“As a child, I jumped at every opportunity for a trip to the airport. I loved airplanes, airports, flying, and travel. One evening I saw TV coverage of a major aircraft accident and I knew that is what I wanted to do, to find out what went wrong. I asked my father how I could find out why airplanes crashed and he told me I could be an aeronautical engineer so that is what I did.”

ANN SYRDAL

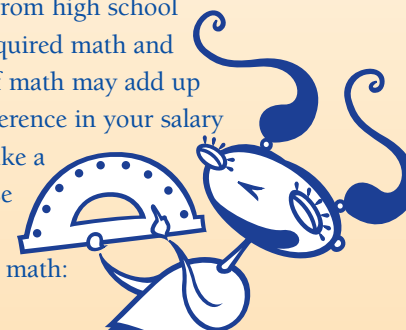
Ann Syrdal is a computer engineer at AT&T Labs in Florham Park, New Jersey. Ann works on text-to-speech (TTS) synthesis, which produces audible sound from written text. You hear TTS at work when you dial 411 and hear a recorded telephone number. TTS also allows people who can't speak, because of illness or disability, to type in words, which can instantaneously be heard by others.

“Speech technology is especially fun because it combines many fields and several of my interests. Besides the enjoyment

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You do the Math!

Thinking of skipping that math elective next year? Think again! Did you know that the difference between graduating from high school with one year of required math and four years of math may add up to a \$30,000 difference in your salary after college? Take a look at some of these careers and the required high school math:



Career	Math Requirements	Median Annual Income
Teacher's Aid	High School Basic Math	\$17,350
Lab Technician	Algebra I, Geometry	\$27,540
Nurse	Algebra I, II, Geometry	\$44,845
Physical Therapist	Algebra I, II, Geometry	\$57,190
Computer Scientist	Algebra I, Geometry Advanced Math	\$59,330
Engineer	Algebra I, II, Geometry, Advanced Math	\$61,240

Bureau of Labor Statistics, 2000

“Four years of high school math, including Algebra I and II, Geometry, and an advanced math course are prerequisites for other math, science, and technical courses you'll need in college to pursue some of these higher-paying jobs.”

Teflon, the non-stick coating used on pots and pans, holds the title in the Guinness Book of World Records as being the slipperiest substance on earth!

Just the FAQs: THE TOP



QUESTIONS ABOUT ENGINEERING

1. What do engineers do?
2. What hours do they work?
3. How long do they have to go to school?
4. What kind of grades do I need in high school to get into a good engineering school?
5. What are the different fields of engineering?
6. What is the career outlook for engineers?
7. How open is engineering to women and people of color?
8. How do I know if I'm “engineer material?”
9. How does engineering help people and society?
10. How can I learn more about engineering?

Take a tour of some of these web sites to find answers to these frequently-asked questions about engineering:

- www.asee.org/precollege
- www.swe.org
- www.nae.edu
- www.asme.org/educate/k12